TIRE DISPLAY APPARATUS

The present invention relates to a tire display apparatus. The present apparatus has multiple levels of adjustability to allow for the display of different size tires.

Background of the Invention

Retailers and wholesalers of tires have used many different methods over the years to display tires for sale. These methods include photographs or drawings of tires in a catalogue or advertisement where a purchaser doesn't even get to see the tires. Another method is to stack tires in various configurations on the floor of a facility. Other methods of display include shelves for tires or simply hooks/brackets to hang tires onto a wall or stand. Finally, some basic devices having an arm support have been developed. In each case, there are one or more limitations of the systems with respect to the mounting of different size tires.

Summary of the Invention

Accordingly, it is an object of the present invention to provide a tire display apparatus that overcomes the foregoing drawbacks. The present invention is a tire display apparatus with multiple dimensions of variability. The apparatus includes a plurality of telescoping arms that accommodate tires having different heights, rim sizes, and widths.

In one embodiment, a tire display apparatus comprises a vertical support spine, a vertical bracket, a first arm and a second arm, and a star frame. A vertical bracket is attachable to the support spine. The first arm is connected on end to the vertical bracket and on its other end to the second arm, the first arm further comprising a first pair of telescoping rods with one rod connected to the vertical bracket and the other rod connected to the second arm. The second arm is connected on one end to the first arm, the second arm further comprising a second pair of telescoping rods with one rod connected on one end to the first arm and the other rod connected to the star frame. The star frame is connected to the second arm, and it further comprises a plurality of telescoping posts, each post having an open channel adapted to engage a tire bead wherein a tire is carried by the star frame. Alternatively, the apparatus may further comprise a hub arm that is telescopically attached to the second arm on the end of the second arm opposite the end connected to the first arm. The hub arm further comprises a flanged screw adapted to secure a hub cap onto the hub arm. The first and second arms may be permanently fixed to each other at a substantially 90 degree angle. Alternatively, the first and second arms may be rotatably connected to each other. The first and second pairs of telescoping rods may further comprise a plurality of slots and each pair may be fixably positioned with respect to each other by a pin insertable in the slots. The star frame may comprise three telescoping posts. Each of those telescoping posts on the star frame may comprise a plurality of slots that may

be fixably positioned with respect to the frame by a pin insertable in the slots. The star frame may further comprise written indicia adjacent to the slots corresponding to predetermined bead diameters.

In an alternative embodiment, a tire display apparatus comprises a vertical support spine, a vertical bracket means, a first arm and a second arm, and a tire mounting means. The vertical bracket means for attachment to the vertical support spine. The first arm is connected on one end to the vertical bracket means and on its other end to a second arm, the first arm further comprising a first means for telescoping whereby the length of the first arm is variable. The second arm is connected on one end to the first frame, the second arm further comprising a second means for telescoping whereby the length of the second arm is variable. The tire mounting means is connected to the second arm, the tire mounting means comprising a plurality of telescoping post means for engaging a tire bead whereby a tire can be displayed on the apparatus.

Brief Description of the Drawings

Figure 1 is an exploded perspective view of a tire display apparatus in accordance with an embodiment of the present invention.

Figure 2 is front elevation, cross-sectional view of a tire display apparatus in accordance with one embodiment of the present invention where a tire is shown in broken lines mounted on the apparatus.

Figure 3 is a perspective view of a bracket and support spine in accordance with one embodiment of the present invention.

Figure 4 is a perspective view of an embodiment of the tire display apparatus in accordance with the present invention where a tire is shown mounted on the apparatus in broken lines.

Detailed Description

The tire display apparatus in accordance with the present invention is especially effective as a result of its variable features that allow it to be adapted to display multiple different types of tires. While a single embodiment is shown and described, those of skill in the art will recognize that variations of this construction may be used to accomplish the same purposes. Those structures are intended to be covered by the scope of the claims herein.

All of figures 1-4 illustrate all or a part of a single embodiment of the present invention. Accordingly, the discussion and reference numbers herein are referring to all of the figures collectively.

The vertical support spine 11 is the foundational structure onto which the tire display apparatus 10 is mounted. As shown, the vertical support spine 11 is a rectangular rod with horizontal apertures 12 on the front face to receive tab 14 from the vertical support bracket 15. The spine 11 additionally has slots 21 in the side thereof. The slots 21 are round and adapted to receive lock pins 18. The lock pins 18 are attached to the bracket 15 by flaps and wires 19.

The spine 11 may be a free-standing frame, for example as part of a movable display. Alternatively, the spine 11 may be screwed into a wall for permanent installation. It is also envisioned that multiple spines 11 may be used in order to display multiple tires, or multiple tires could be displayed on a single spine.

Vertical support bracket 15 is adapted to be mounted onto the spine 11. As shown, the vertical bracket 15 has a square channel that fits onto rectangular spine 11. Tab 14 is insertable into any one of apertures 12 in the spine 11. Side support panels 13 slide up and down adjacent spine 11. These side support panels 11 include slots 21. These slots 21 are circular and adapted to receive lock pins 18 in such a manner that the lock pins 18 pass through slots 21 and 22 in order to, together with the tab 14 in aperture 12, releasably secure the bracket 15 to the spine 11.

Many spine/bracket configurations are possible to allow variability of a tire display apparatus with respect to the height of mounting of the bracket on the spine above a floor or surface.

The first arm of the apparatus 10 is made up of rods 16 and 25. Rod 16 is connected on one end to the vertical bracket 15. As shown, this connection is a rigid and fixed connection. Brace 17 helps support the overall apparatus. Alternatively, rod 16 and bracket 15 may be rotatably connected through a hinge type system, for instance, a vertical hinge or a universal hinge. The two rods 16 and 25 are telescoping with respect to each other in that rod 16 is adapted to be slidably received inside rod 25. Rod 16 includes multiple slots

20 along its length. Rod 25 includes slots 26 that, when used in connection with locking pin 27, fix the rod 25 with respect to the rod 16. The locking pin 27 is conveniently attached to rod 25 through a flap and wire 28. By feeding the pin 27 through slot 26 and any one of slots 20, the length of the apparatus with respect to the distance from the support spine 11 may be varied. As shown, rods 16 and 25 are hollow, u-shaped pieces. Rod 16 is the male connection that is insertable inside of rod 25. While the pin and slot configuration with respect to rods 16 and 25 is shown, any types of telescoping systems or any other system which allow the length of an arm to be variable may be used.

A second arm is made up of rods 35 and 40. Rod 35 is connected on one end to the end of rod 25 of the first arm. Rod 35 is shown as being rigidly and fixedly connected to rod 25 at a substantially 90 degree angle. The connection of the second arm, and specifically rod 35 to the first arm, and specifically rod 25 may alternatively be rotatable through some type of hinging device. Rod 35 includes slots 36. Rod 40 includes slots 41. By inserting rod 35 in a telescoping fashion into rod 40, and then using locking pin 42, the length of the second arm may be varied. Locking pin 42 is conveniently secured to the end of the first arm by flap and wire 43.

Star frame 50 is connected to the second arm, and specifically rod 40, whereby the star frame is a variable length from the first arm. When the connection between the first arm and second arm is substantially 90 degrees

as shown, varying the length of the second arm, specifically the relationship between rods 35 and 40, allows a user to vary the length of the display apparatus depending on a width of a tire to be mounted on the display. The star frame 50 as shown may be rigidly fixed to the rod 40. Alternatively, the frame 50 may be rotatably connected to rod 40 so that a tire mounted on the frame 50 may spin around. The star frame 50 includes telescoping posts 52 that are used to support a tire. The posts 52 telescope in and out of pipes 51 that make up a part of the frame 50. The pipes 51 includes slots 54 that, together with slots 53, allow variability in the length of posts 52. Adjacent the slots 53 is a flap 56 on which is displayed written indicia that correspond to predetermined tire bead diameters - - as shown, 15 inches to 24 inches. Each post 50 has an open channel 58 on its opposite end from the connection to the rod 40. The open channel 58 is adapted to engage a tire bead and carry a tire. As shown, 3 support arms are used to support a tire. It is possible that one or two or more than three posts may be used to adequately support a tire depending on an additional or alternative gripping mechanism that may be used at the end of a post 52.

A hub arm is made up of rods 60 and 61. Rod 60 is attached to the second arm at rod 40. As shown, the hub arm made up of rod 60 and 61 has a variable length. The hub arm length may alternatively be fixed. The rod 60 includes slots 62. Rod 61 includes slots 63. By inserting rod 60 and sliding it into rod 61, the length may be varied by inserting locking pin 64 into and

through a slot 63 and a slot 62. At the end of rod 61 is a threaded aperture 72 adapted to receive screw 71 having a flanged portion 70. Flanged portion 70 is adapted to secure a hub cap 80 onto the hub arm. Accordingly, it is preferable that the hub arm is variable in length as shown in order to accommodate varying widths of tires that may be displayed. The hub cap 80 may be a real hub cap, an artificial hub cap for display purposes only, or some other circular display device. The screw 71 allows the flange 70 to tighten onto a hub cap 80 and onto a tire to simulate the appearance of a hub cap as it would actually look on a tire on a vehicle.

Figure 4 illustrates an assembled tire assembly 10 bearing a tire 81 shown in broken lines. As is evident from figure 4, the tire bead 82, and specifically one of the tire beads is carried by the channels 58 that extend from the star frame 50.

While the invention has been described with reference to specific embodiments thereof, it will be understood that numerous variations, modifications and additional embodiments are possible, and accordingly, all such variations, modifications, and embodiments are to be regarded as being within the spirit and scope of the invention.